

Health Plan Policies and Programs for Colorectal Cancer Screening: A National Profile

Carrie N. Klabunde, PhD; Gerald F. Riley, MSPH; Margaret T. Mandelson, PhD;
Paul S. Frame, MD; and Martin L. Brown, PhD

Background: A consensus has emerged that average-risk adults 50 years of age or older should be screened for colorectal cancer (CRC).

Objectives: To describe health plans' coverage policies, guidelines, and organized programs to promote CRC screening.

Study Design and Methods: Review of data from the National Cancer Institute Survey of Colorectal Cancer Screening Practices, administered to a national sample of health plans in 1999-2000. The survey inquired about coverage policies for fecal occult blood testing, sigmoidoscopy, colonoscopy, and double-contrast barium enema; the nature of any guidelines the plan had issued to its providers on CRC screening; and systems for recruiting patients into screening and for tracking and reporting the results of screening and follow-up procedures.

Results: Of 346 eligible health plans, 180 (52%) responded. Nearly all health plans covered at least 1 CRC screening modality. Plans were most likely to cover fecal occult blood testing (97%) and least likely to cover colonoscopy (57%). Sixty-five percent had issued guidelines on CRC screening to providers. One quarter had a mechanism to remind patients that they are due for CRC screening, but fewer had systems for prompting providers, contacting noncompliant patients, or tracking completion of screening.

Conclusions: Health plans have the ability to provide organizational infrastructure for a broad range of preventive services to well-defined populations. However, few health plans had all 3 essential CRC screening delivery components—coverage, guidelines, and tracking systems—in place in 1999-2000.

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For editorial comment, see page 247.

Despite consensus among expert groups in the United States that average-risk adults 50 years of age or older should be screened for colorectal cancer (CRC),^{1,3} national data reveal that CRC screening rates are lower than those for breast and cervical cancer by nearly one half or more.⁴ A complexity of factors involving patients, providers, and the healthcare delivery system contribute to the underuse of CRC screening by older adults in the United States.^{5,6} Because more than half of the US population is enrolled in health plans and many of these organizational entities are able to deliver preventive services to defined populations, health plans are a potentially important vehicle for increasing CRC screening rates nationwide.^{7,8} However, data are lacking to describe the extent to which health plans systematically provide CRC screening as a preventive service to their enrollees.

We evaluated data from the National Cancer Institute Survey of Colorectal Cancer Screening Practices, a comprehensive survey of primary care and specialty physicians and health plan medical directors that was designed to provide current, nationally representative data on CRC screening in the United States and to identify barriers to screening in community practice.⁹ Herein we describe health plans' coverage policies, use of guidelines for CRC screening, and implementation of systems for CRC screening delivery and monitoring.

METHODS

Sampling Methodology

We surveyed a nationally representative sample of health plans in 1999-2000, using a comprehensive database of US health plans obtained from SMG Marketing Group, Inc, as the sampling frame.¹⁰ The study population was defined as health plans offering medical/surgical or full-service products. Plans providing only Medicaid coverage were excluded because their coverage and services are likely to be oriented primarily to a specific population (ie, children and women of childbearing age) for which CRC screening has little relevance. The corporate parents of local plans also were ineligible for the survey.

The target population for the survey comprised 1916 local plans. Health plans were organized into 3 main strata for sample selection. The first stratum contained all plans listed in the sampling frame database as having > 1 000 000 members (n = 24). The second stratum contained plans with < 1 000 000 members and for which 1 medical director was responsible for more than 1 plan (n = 935). The third stratum contained all remaining plans in the target population (n = 606). All plans in the

From the Division of Cancer Control and Population Sciences, National Cancer Institute (NCI), Bethesda, Md (CNK, MLB); the Office of Research, Development, and Information, Centers for Medicare and Medicaid Services, Baltimore, Md (GFR); the Center for Health Studies, Group Health Cooperative of Puget Sound, Seattle, Wash (MTM); Tri-County Family Medicine, Cohocton, NY (PSF); and the Department of Family Medicine, University of Rochester School of Medicine and Dentistry, Rochester, NY (PSF).

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Address correspondence to: Carrie N. Klabunde, PhD, Applied Research Program, National Cancer Institute, Executive Plaza North Room 4005, 6130 Executive Boulevard, Bethesda, MD 20892-7344. E-mail: ck97b@nih.gov.

first stratum were selected with certainty. For each medical director represented in the second stratum, 1 plan was randomly selected. This procedure was adopted to ensure adequate representation of very large plans, and to avoid the respondent burden entailed in the receipt of multiple surveys by those medical directors who manage multiple health plans. After sorting by US Census region (Northeast, North Central, South, West) and plan size, a random sample was drawn from the third stratum. The survey's final sample size of 346 health plans was designed to provide estimates of population proportions within $\pm 6\%$ at a 95% confidence interval.

Survey Methodology

Medical directors of study plans were sent an advance mailing in the fall of 1999 that included a cover letter describing the objectives of the survey, letters of support from 3 medical societies and the US Surgeon General, and a postcard with a stamped return envelope on which medical directors were asked to verify their contact information and indicate their preferred mode of response to the survey (ie, mail, fax, telephone, or secure Internet Web site). Medical directors who responded to the advance mailing were sent a subsequent mailing that included the mail or fax version of the questionnaire or instructions on how to complete the survey by telephone or Internet, depending on their stated preference. Approximately 6 weeks later, medical directors who did not respond to the advance mailing were sent a follow-up mailing containing the mail version of the questionnaire. A second follow-up mailing of the questionnaire was sent by express mail to nonrespondents in February 2000. Telephone follow-up of nonrespondents was undertaken in March and early April 2000. The survey took approximately 20 minutes to complete; no monetary response incentive was provided.

Because of the trend toward diversification of health plans into multiple model types, medical directors representing a plan comprising more than 1 model type were asked to respond for the plan's predominant model type. Survey questions regarding plan benefits for preventive services were specific to "patients other than Medicare beneficiaries" because the Medicare program provides a standardized benefit package for beneficiaries who are enrolled in health plans. More details on the survey can be found at: <http://healthservices.cancer.gov/surveys/colorectal>. The study received approval from the institutional review boards of the National Cancer Institute and Abt Associates, Inc.

Statistical Analysis

We used descriptive statistics to examine health plans' coverage policies and use of guidelines for CRC

screening and implementation of systems for CRC screening delivery and monitoring. We used contingency tables with chi-square tests to assess selected plan characteristics that might be associated with coverage policies, guidelines, and organized programs to promote CRC screening. Characteristics of interest included ownership (for-profit vs not-for-profit), model type (group/staff vs network/independent practice association vs preferred provider organization/point-of-service plan/other), accreditation (yes vs no), and method of primary care physician compensation (capitation vs other). A sample weight that accounted for the probability of selection into the sample as well as a slightly higher rate of nonresponse among for-profit plans was assigned to each respondent. Sampling weights were applied in the statistical analyses to permit generalization of results to the population of local health plans in the United States that provide full-service or general medical/surgical coverage.

RESULTS

Respondents

A total of 180 health plan medical directors responded to the survey (response rate = 52%). Characteristics of responding plans are shown in Table 1.

Coverage of Preventive Services, Including Colorectal Cancer Screening Modalities

Most medical directors indicated that their plans provided coverage for selected office and preventive care services, including routine acute care physician visits, screening mammograms, prostate cancer screening with the prostate-specific antigen (PSA) test, and CRC screening with fecal occult blood testing (FOBT), flexible sigmoidoscopy, colonoscopy, and double-contrast barium enema (DCBE) (Table 2). For CRC screening with FOBT, very few plans (<1%) restricted their coverage to patients designated as high risk. However, for more invasive and expensive CRC screening procedures, plans were more likely to restrict coverage to high-risk patients. For example, 35% of the 152 plans that covered CRC screening with colonoscopy did so only for high-risk patients. The same was true of 17% of the 153 plans that covered DCBE and 9% of the 172 plans that covered sigmoidoscopy. In 85% of covering plans, patients incurred an out-of-pocket charge for a routine acute care physician visit. This requirement was less common for screening procedures, however, with slightly more than 50% of covering plans assessing out-of-pocket charges for sigmoidoscopy or colonoscopy, 44% for PSA testing, and <40% for mammography, FOBT, or DCBE.

Use of Guidelines or Protocols for Colorectal Cancer Screening

Sixty-five percent (n = 128) of plans had issued guidelines to providers on the topic of CRC screening, with slightly more than half recommending more than 1 CRC screening modality. Ninety-six percent of these guidelines covered asymptomatic, average-risk patients. Most (88%) were adopted from guidelines developed elsewhere, primarily those of the 1996 US Preventive Services Task Force.¹¹

Of the plans that had disseminated CRC screening guidelines to providers, most covered FOBT and sigmoidoscopy, whereas relatively few covered colonoscopy or DCBE (Table 3). For those modalities included in plan guidelines, nearly all plans (≥87%) specified starting ages and screening intervals. Considerably fewer (≤20%) specified an age at which screening could be discontinued or the provider types that should conduct screening with the modality. Few plans (≤28%) included in their guidelines specific recommendations for the diagnostic evaluation of positive FOBT, sigmoidoscopy, or DCBE screening tests. Of the plans that had issued guidelines that included sigmoidoscopy, colonoscopy, or DCBE, the modality covered was almost universally delivered within the plan rather than through out-of-plan referrals.

While a high proportion of the plans that had issued CRC screening guidelines specified the use of FOBT as a screening modality (89%, n = 110), few provided specific guidance or procedures for ensuring a high-quality test or high test completion rates. For example, the guidelines of only 16% specified the use of home test kits. In addition, fewer than 10% detailed a procedure to ensure the completion and return of home FOBT cards; in half of the plans with such a procedure, verbal instructions rather than mailed reminders or telephone reminder calls were noted as the type of reminder (data not shown).

Table 1. Characteristics of Health Plans Participating in the Survey of Colorectal Cancer Screening Practices

Characteristic	n	%
Model type		
Group/staff	15	9.5
Network	58	42.6
IPA	58	25.8
PPO/POS	34	17.9
Other	15	4.2
Enrollees	172	mean = 473 538
Years in operation	172	19.0
Plan enrollees covered by Medicaid	168	7.9
Plan enrollees covered by Medicare	168	10.5
Ownership		
For-profit	131	75.6
Not-for-profit	49	24.4
Primary care physician compensation		
Fee for service	99	49.8
Capitation	57	38.8
Salary	6	4.1
Don't know	18	7.3
Accredited by NCQA or PPO accreditation body*		
Yes	82	46.0
No	98	54.0

n = 180.

*Utilization Review Accreditation Commission or the Joint Commission on Accreditation of Health Care Organizations.

IPA indicates independent practice association; NCQA, National Committee for Quality Assurance; POS, point-of-service plan; PPO, preferred provider organization.

Colorectal Cancer Screening Delivery and Monitoring

Only 41% of plans had any system for delivering and/or monitoring CRC screening utilization and outcomes (Table 4). Twenty-five percent had a mechanism to remind patients that they are due for CRC screening, and 16% had a system to remind providers that the patient is due for screening. Sixteen percent monitored screening utilization by tracking the number of enrollees who are invited to receive or who actually complete CRC screening. Fewer than 15% monitored such screening outcomes as the performance parameters of CRC screening tests or receipt of appropriate follow-up care by patients with abnormal results. Only 11% had an organized unit for delivering, or a program for training primary care providers to deliver, screening endoscopy procedures.

Characteristics Associated With Coverage Policies, Guidelines, and Organized Programs

Health plan characteristics associated with coverage policies and guidelines for and organized programs to

POLICY

Table 2. Coverage of Selected Office and Preventive Care Services by Health Plans Participating in the Survey of Colorectal Cancer Screening Practices

	Routine Acute Care Physician Visit (n = 173)	Screening Mammogram (n = 171)	PSA Screening (n = 160)	FOBT (n = 174)	Flexible Sigmoidoscopy (n = 172)	Colonoscopy (n = 152)	Double-Contrast Barium Enema (n = 153)
Plan benefits cover for non-Medicare enrollees	97.1 (94.3-100)	96.6 (93.8-99.4)	90.2 (84.9-95.4)	97.0 (94.1-100)	96.8 (93.8-100)	87.8 (82.0-93.5)	87.2 (81.2-93.2)
Coverage is restricted to patients at high risk*	—	—	—	0.9 (0.0-1.9)	8.5 (0.3-16.8)	35.3 (23.0-47.7)	16.8 (6.9-26.6)
Patients incur out-of-pocket charge when provided in plan*							
Deductible	12.1 (4.7-19.4)	7.5 (1.0-14.0)	9.4 (2.2-16.6)	8.6 (1.6-15.5)	10.7 (3.3-18.1)	6.9 (2.4-11.5)	9.4 (1.8-17.0)
Other cost-sharing	57.2 (44.7-69.6)	18.1 (8.5-27.6)	22.4 (10.2-34.5)	20.0 (8.0-31.4)	30.2 (17.9-42.6)	32.8 (19.1-46.4)	19.9 (7.3-32.5)
Both	15.7 (5.8-25.7)	11.4 (1.4-21.4)	12.6 (2.1-23.0)	9.0 (2.1-15.9)	11.1 (3.7-18.5)	11.6 (3.7-19.5)	9.8 (2.3-17.4)

n = 180. Values are percentage (95% confidence intervals).

*Items about restriction of coverage to patients at high risk and patient cost-sharing requirements were only asked of plans that indicated that plan benefits covered the specific office or preventive care service.

FOBT indicates fecal occult blood test; PSA, prostate-specific antigen.

Table 3. Characteristics of the Colorectal Cancer Screening Guidelines Issued by 128 Health Plans (65% of Total) Participating in the Survey of Colorectal Cancer Screening Practices

	FOBT (n = 100)	Flexible Sigmoidoscopy (n = 98)	Colonoscopy (n = 20)	Double-Contrast Barium Enema (n = 17)
Guidelines specify				
This modality	89.0 (82.5-95.5)	80.7 (72.1-89.3)	11.3 (5.0-17.7)	25.7 (9.6-41.7)
Starting age	86.6 (73.1-100)	96.9 (94.4-99.5)	94.0 (85.0-100)	100.0
Screening interval	87.6 (74.3-100)	93.8 (90.0-97.6)	93.6 (84.0-100)	94.8 (83.7-100)
Stopping age	7.2 (1.9-12.4)	13.3 (0.0-27.8)	0.0	8.4 (0.0-21.4)
Provider type to conduct screening with this modality	19.7 (2.6-36.8)	11.2 (0.0-25.6)	13.3 (0.0-27.5)	—
Follow-up to a positive screening test	27.8 (13.8-41.8)	16.6 (7.6-25.5)	—	7.1 (0.0-15.9)
Screening test is usually performed				
In plan		98.6 (97.1-100)	97.7 (92.9-100)	99.0 (96.7-100)
Out of plan		0.0	0.0	0.0
Both occur equally		0.8 (0.0-2.0)	2.3 (0.0-7.1)	1.0 (0.0-3.3)

Values are percentage (95% confidence intervals).

FOBT indicates fecal occult blood test.

promote CRC screening are summarized in **Table 5**. Few differences were noted in the 4 screening practices assessed by ownership status. However, group-/staff-model HMOs were significantly more likely than other plan types to cover more than 1 screening modality, to have issued screening guidelines to providers, to have issued guidelines covering more than 1 screening modality, and to have implemented any system for screening delivery or monitoring. Accredited plans were significantly more likely than nonaccredited plans to have implemented all practices except systems for screening delivery or monitoring. Plans that used capitation for primary care physician compensation were significantly more likely than plans using another means of compensation to have issued CRC screening guidelines to providers and implemented at least 1 mechanism for screening delivery/monitoring.

DISCUSSION

Very little information has been available on health plan policies and programs for CRC screening. As noted recently by Fletcher et al.,⁸ an effective CRC screening program necessitates that insurers pay for screening, that providers offer and patients accept screening, and that provider groups have a system for tracking receipt of appropriate screening. We found limited CRC screening activity by most health plans in 1999-2000, with few having all 3 of these essential CRC screening delivery components—coverage, guidelines, and tracking systems—in place.

A high proportion (>87%) of health plans indicated that plan benefits covered FOBT, sigmoidoscopy, colonoscopy, and DCBE as CRC screening modalities for non-Medicare enrollees, although up to one third

Table 4. Health Plan Systems for Colorectal Cancer Screening Delivery and Monitoring

System	No.	%	95% CI
Has any system for colorectal cancer screening delivery or monitoring	67	40.5	28.3-52.7
Has a mechanism to			
Remind <i>providers</i> that a patient is due for screening	28	16.4	7.4-25.3
Remind <i>patients</i> that they are due for screening*	39	25.1	14.0-36.2
Recontact eligible patients who are not screened	14	6.0	2.2-9.8
Tracks the number of			
Enrollees invited to receive screening each year	20	9.3	4.3-14.3
Invited enrollees who actually complete screening	25	11.2	5.8-16.5
Enrollees who complete screening, whether or not they were invited	27	13.6	7.6-19.7
Measures and reviews these colorectal cancer screening test parameters			
Number of abnormal screens	11	3.4	1.1-5.7
Number of false-positive tests	6	2.1	0.2-4.1
Number of false-negative tests	5	1.9	0.0-3.8
PPV of screening test	4	2.4	0.0-5.0
Tracks outcomes for patients with an abnormal colorectal cancer screening test result			
Whether follow-up procedures obtained	13	5.1	1.7-8.5
Results of follow-up procedures	11	4.6	1.3-7.9
Adverse events from follow-up procedures	14	9.7	1.4-17.9
Maintains or contracts with an organized, dedicated unit for performing endoscopic colorectal cancer screening examinations	12	8.3	0.2-16.3
Has an organized program to train primary care providers in colorectal cancer screening with sigmoidoscopy or colonoscopy	5	3.1	0.1-6.2

CI indicates confidence interval; PPV, positive predictive value.

*Seven of these plans indicated that the reminder system entailed a verbal reminder from the provider during an office visit rather than a telephone call or mailed notification to the patient. Excluding plans that used only verbal reminders during an office visit yields a somewhat lower estimate of 18% of plans that have a mechanism to remind patients that they are due for colorectal cancer screening.

restricted their coverage of colonoscopy and DCBE to high-risk patients. At least 40% required patients to pay an out-of-pocket charge for CRC screening tests. While our results show these estimates to be consistent with plan coverage policies for screening mammograms and PSA tests, the relatively high proportions of health plans that require patient cost sharing for sigmoidoscopy, DCBE, and colonoscopy are noteworthy because of the high cost of these procedures. For example, average Medicare payments range from \$130 to \$190 for sigmoidoscopy and from \$459 to \$652 for colonoscopy, depending on the procedure setting (B. Larson, BS, Centers for Medicare

Table 5. Summary of Colorectal Cancer Screening Practices by Selected Characteristics for 180 Health Plans

Screening Practice	All Plans	Ownership		Model Type			Accreditation		Compensation of Primary Care Physicians	
		For-Profit	Not-for-Profit	Group/Staff	Network/ IPA	PPO/POS/ Other	Yes	No	Capitation	Other
Covers >1 screening modality for average risk	90.7	90.5	91.4	97.8*	93.5*	80.3*	93.0 [†]	88.7 [†]	88.7	91.9
Has issued colorectal cancer screening guidelines	64.5	63.1	68.7	77.1*	72.4*	42.3*	79.6*	51.6*	69.4 [†]	61.5 [†]
Has issued guidelines covering >1 screening modality	51.9	50.3	56.6	74.8*	55.7*	35.7 [‡]	67.0*	38.9*	53.7	50.8
Has any system for screening delivery or monitoring	40.5	42.5 [†]	34.4 [†]	92.2*	36.1*	35.6*	42.7	38.7	47.4 [‡]	36.3 [‡]

Values are percentages.

* $P < 0.0001$.

[†] $P < 0.05$.

[‡] $P < 0.005$.

IPA indicates independent practice association; POS, point-of-service plan; PPO, preferred provider organization.

and Medicaid Services, e-mail, May 6, 2003). Patient cost-sharing requirements have been shown to reduce rates of use of preventive services and to influence preferences for specific CRC screening tests.¹²⁻¹⁷

Fewer health plans (about two thirds) reported that they had issued guidelines to plan providers on the topic of CRC screening, with the great majority of these indicating that their guidelines specified FOBT and sigmoidoscopy and one quarter or fewer reporting that their guidelines specified colonoscopy or DCBE as screening modalities. Although most plans with CRC screening guidelines provided guidance on starting ages and screening intervals, fewer than one third reported that their guidelines described what should be done as follow-up to a positive FOBT, sigmoidoscopy, or DCBE screening test. Even fewer specified the use of home test kits for screening with FOBT. These findings have important practice implications, as many primary care physicians do not recommend appropriate follow-up to positive CRC screening tests and conduct FOBT exclusively by digital rectal examination.^{18,19}

Our results also show that only a minority of plans have implemented a system for delivering and/or monitoring CRC screening utilization and outcomes. System components that we examined included patient and provider reminder systems; mechanisms for tracking CRC screening use, test performance parameters,

and patient outcomes; and organized units or programs for delivering screening endoscopy or training primary care providers to perform screening endoscopy procedures. Given the relative recency of major guidelines that recommend CRC screening as well as the lack of a CRC screening Health Plan Employer Data and Information Set (HEDIS) measure at the time of our survey, these results are not surprising. They help to elucidate national data that demonstrate low CRC screening rates among older adults and less than optimal levels of appropriately screened patients within the practices of many primary care physicians.^{4,19}

Our assessment of health plan characteristics associated with coverage policies and guidelines for and organized programs to promote CRC screening showed model type and accreditation status to be most strongly associated with providing coverage, guidelines, and organized programs. Specifically, group/staff model HMOs and accredited plans were more likely to cover multiple CRC screening modalities, to have issued CRC screening guidelines to plan providers, or to have in place a system for CRC screening delivery and/or monitoring. These results support prior work that has examined the relationship between model type and provision of preventive services,²⁰⁻²³ including cancer screening.²⁰⁻²² Selected group-/staff-model HMOs or accredited health plans could serve as models for

designing systems for promoting and monitoring CRC screening.²⁴

A limitation of this study is the modest response rate to our survey (52%), which increases the possibility of nonresponse bias. We carefully examined differences between responding and nonresponding plans and adjusted our results to account for identified differences. Nevertheless, responding plans may have differed from nonresponding plans in characteristics that we could not measure. For example, responding plans may have been more active in the provision of CRC screening, in which case our estimates of health plan coverage policies, guideline provision, and tracking/monitoring of screening may be somewhat inflated. Notably, most surveys of businesses and other organizational entities achieve considerably lower response rates than that attained in our study.²⁵

CRC screening is evolving rapidly, with several major developments occurring subsequent to our data collection. These include publication of new observational data supporting use of screening colonoscopy,^{26,27} expansion of coverage by the Medicare program to include screening colonoscopy for average-risk beneficiaries,²⁸ the release of updated guidelines by the US Preventive Services Task Force in which colonoscopy and DCBE are now recommended CRC screening options,² and the adoption of CRC screening as a HEDIS measure by the National Committee for Quality Assurance.²⁹ These developments may be prompting health plans to increase their efforts to deliver and monitor CRC screening.

Our study provides important baseline data from which to evaluate progress toward attaining higher rates of CRC screening in the United States. More work is needed to understand the role that health plans and other organizational entities can play in improving CRC screening rates. Such efforts should include Medicaid-only health plans to assess their activities in delivering this important preventive service to low-income, compromised access populations.

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